

## REMARKS

The Official Action of January 21, 2004 has been carefully considered and reconsideration of the application as amended is respectfully requested.

Claim 4 has been amended to require that the saccharide-alkyleneoxy derivative represented by formula (1) is present in the claimed ink in an amount of 4 to 10% by weight based on the weight of the ink. These upper and lower limits on the amount of this component are supported by the Examples in the specification, which exemplify inks having these amounts (see Example 11 on page 43 and Example 8 on page 40) and inks having amounts in between (see, e.g., Examples 7, 9 and 10). Claims 20 and 21 have been rewritten as method claims more closely to comport with the provisions of 35 USC 101. New claim 23 has been added more completely to define the subject matter which Applicant regards as his invention. Support for the recitations in this claim is provided in the specification at page 15, lines 20-21.

The claims stand rejected under 35 USC 102(b) as allegedly being anticipated by Iwata et al or under 35 USC 103(a) as allegedly being unpatentable over Iwata et al in view of the other references cited at paragraphs 5 and 6 of the Official Action. Applicants respectfully traverse these rejections.

First, Applicant respectfully calls the Examiner's attention to the Declaration under 37 CFR 1.132 submitted herewith, which shows the criticality of incorporating

the recited saccharide-alkyleneoxy derivative into the claimed ink in an amount of at least 4% by weight in order to achieve optimal results in the nozzle clogging-recovering property evaluated in the declaration. As shown in the Declaration, the inks comprising the compound of formula (1) in amounts of from 4 to 10 wt% and in combination with a C<sub>3</sub> to C<sub>12</sub> saccharide (Test Examples 4-6 and 11) were superior in the evaluation to inks wherein the compound of formula (1) or a C<sub>3</sub> to C<sub>12</sub> saccharide were used singly (Test Examples 1-3) and to inks wherein the compound of formula (1) was present in less than 4 wt % (Test Examples 7-10).

Next, Applicant respectfully calls the Examiner's attention to the fact that these results could not have been expected from the Iwata et al reference. Although Iwata et al discloses at column 4, lines 60-62, the use of an alkylene oxide additive of a polyhydric alcohol as an optional additive, Iwata also discloses that this optional additive should be present in a small quantity. This quantity as discussed at column 5, lines 11-15, is within the range of from 0.05 to 4% by weight, and preferably is in a range of 0.05 to 2% by weight based on the total weight of the recording liquid. The Iwata Examples 3 and 4 exemplify a saccharide-alkyleneoxy derivative within the lower end of the preferred range, i.e., 0.1 and 0.2 % respectively. (These examples also disclose an amount of saccharide that is lower than the amount for this component recited in claim 23.)

Although the upper endpoint of the broader range disclosed in Iwata for the saccharide-alkyleneoxy derivative touches the lower endpoint of the claimed range for

this component, the reference cannot be considered to anticipate the claims. As discussed in MPEP Section 2131.03, where no specific examples falling within the claimed range are disclosed, there is no anticipation if the claimed subject matter is not disclosed with "sufficient specificity". With respect to what constitutes "sufficient specificity", MPEP Section 2131.03 makes clear that, where as here the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, it is reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. As discussed above, the Declaration submitted herewith shows that the preferred range disclosed in the reference and exemplified in the reference examples is inferior to the claimed range in the evaluated nozzle clogging recovering property. This could not have been expected from the cited reference whereby the claimed invention is also unobvious from the cited reference (see MPEP Section 2131.03).

The other facts of this case also show that the claimed invention is not disclosed with "sufficient specificity" in Iwata to constitute an anticipation. For example, glycerin is only one of a huge number of organic solvents disclosed in the reference (see Iwata at column 4, lines 36-46). Accordingly, in the absence of the hindsight provided by the present specification, there would have been no motivation for one of skill in the art to pick and choose glycerin from among the many other disclosed organic solvents for use with the saccharide-alkeneoxy derivative in an amount of 4%. This is especially true since the reference teaches a preferred range of

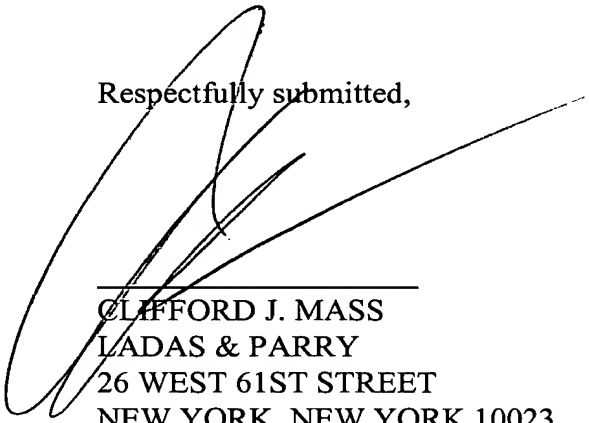
the derivative of 0.05 to 2%. Under these circumstances, Iwata cannot be considered to anticipate or to render obvious the present claims.

The claims also stand rejected under 35 USC 103(a) as allegedly being unpatentable over the references and combinations of references cited at paragraphs 7-13 of the Official Action. Applicant respectfully traverses these rejections as well.

It is respectfully submitted that the results in the Declaration submitted herewith show unexpected results with the claimed composition that would be sufficient to rebut any alleged case of *prima facie* obviousness set forth by the cited references. The Examiner has argued in the Official Action that Sano et al already disclose the criticality of using saccharide for nozzle clogging recovery such that one would expect a combination of the cited references to be superior in terms of obstruction. However, Applicant respectfully notes that the Declaration submitted herewith shows that, where the compound of formula (1) or a saccharide is used singly (Test Examples 1-3), the nozzle clogging-recovery property is not as good as if the compounds are used together (Test Example 4-6 and 11). These results could not have been expected from the cited references where the compounds are only disclosed singly and there is no suggestion that their combination would result in an improvement of the subject property.

In view of the above, it is respectfully submitted that all rejections and objections of record have been overcome and that the application is now in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,



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## PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Masahiro YATAKE

Group Art Unit: 1714

Application No. 09/909,417

Examiner: Callie E. Shosho

Filed: July 19, 2001

For: SACCHARIDE-ALKYLENEOXY DERIVATIVE AND INK

DECLARATION UNDER 37 CFR §1.132Honorable Commissioner of Patents and Trademarks  
Alexandria, VA 22313-1450

Sir:

I, Masahiro Yatake, do declare and state that:

I graduated from Science and Technology of  
Nagasaki University, Department of Materials Science and  
Engineering, Superstructural Materials Engineering  
Laboratory in March of 1983.

I graduated from Graduate School of Science and  
Technology of Nagasaki University, Course of Materials  
Science and Engineering, Superstructural Materials  
Engineering Laboratory, receiving a Master's Degree in  
Polymer Material Engineering in March of 1985.

I was employed by Seiko Epson Corporation in  
April of 1985, and since that time to March of 1993, I had

U.S. Application No. 09/909,417  
Declaration Under 37 CFR 1.132

been principally engaged in development relating to magnet optical media in said company.

After that, I have been principally engaged in development relating to ink jet inks in said company.

I am the sole inventor of the invention described and claimed in the above-identified application and am familiar with the Office Action dated January 21, 2004 issued therein.

The following comparative experimentation was conducted by me or under my supervision to demonstrate the unexpected superiority of the presently claimed invention.

#### EXPERIMENTATION

Inks of Test Examples 1 to 11 were prepared in accordance with the formulation set forth in Example 7 of the specification, except that the "Substance obtained in Example 1" (i.e., compound of formula (1)) was used in the amount shown in Table A below or omitted, and that the "Maltitol" was omitted or replaced with the below-shown amount of maltitol, xylitol, glycerol or a combination thereof. (Herein, the inks of Test Examples 1 to 6 are completely the same as those specified in Table A of the executed Rule 132 Declaration filed October 15, 2003.)

U.S. Application No. 09/909,417  
Declaration Under 37 CFR 1.132

Each of the thus prepared inks was allowed to stand in a printer (EM930C, manufactured by Seiko Epson Corporation) at 60°C and 40%RH for 1 week or at 40°C and 20%RH for 3 months, and then the nozzle clogging-recovering property was examined and evaluated in accordance with the following criteria.

A: 3 or less cycles of cleaning restored all nozzles.

B: 5 or less cycles of cleaning restored all nozzles.

C: 10 or less cycles of cleaning restored all nozzles.

D: Even 10 cycles of cleaning did not restore all nozzles.

The obtained results are shown in Table A below.

Table A

Test Example Nos.	1	2	3	4	5	6	7	8	9	10	11
Compound of Formula (1)	15			10	5	10	3	2	1	0.5	4
Maltitol		15		5	5		5	6	7	7	4
Xylitol			15		5						
Glycerol						5	7	7	7	7.5	7
Recovering Property (60°C, 40%, 1 Week)	C	D	D	A	A	A	B	C	C	D	A
Recovering Property (40°C, 20%, 3 Months)	C	D	D	B	B	A	C	C	D	D	A

As is apparent from the results shown in the above Table, the compound of formula (1) gave excellent results in nozzle clogging-recovering property when used in an amount of from 4 to 10 wt% and in combination with a C<sub>3</sub> to C<sub>12</sub> saccharide (Test Example 4-6 and 11). Contrary, in



U.S. Application No. 09/909,417  
Declaration Under 37 CFR 1.132

the case where the compound of formula (1) or a C<sub>3</sub> to C<sub>12</sub> saccharide was used singly (Test Example 1-3) or where the compound of formula (1) was used in a smaller amount (Test Examples 7-10), the nozzle clogging-recovering property was considerably deteriorated.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: May 6, 2004

Masahiro Yatake  
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